UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,116	06/08/2005	Lilla Boroczky	US020536	8794

24737 7590 09/18/2008

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER	
DAZENSKI, MARC A	

ART UNIT	PAPER NUMBER
2621	

MAIL DATE	DELIVERY MODE
09/18/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/538,116	BOROCZKY ET AL.	
	Examiner	Art Unit	
	MARC DAZENSKI	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-18 and 21-27* is/are rejected.

7)☒ Claim(s) *6,19 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6-08-2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: the word "effect" in the title is misspelled as "effecti". Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

> Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.
>
> When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).
>
> In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claim 27 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 27 defines a program product stored on a recordable medium embodying functional descriptive material. However, the claim does not define a computer-readable medium or computer-readable memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). The scope of the presently claimed invention encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. The examiner suggests amending the claim(s) to embody the program on "computer-readable medium" or equivalent; assuming the specification does NOT define the computer readable medium as a "signal", "carrier wave", or "transmission medium" which are deemed non-statutory (refer to "note" below). Any amendment to the claim should be commensurate with its corresponding disclosure.

Note:

A "signal" (or equivalent) embodying functional descriptive material is neither a process nor a product (i.e., a tangible "thing") and therefore does not fall within one of the four statutory classes of § 101. Rather, "signal" is a form of energy, in the absence of any physical structure or tangible material.

Should the full scope of the claim as properly read in light of the disclosure encompass non-statutory subject matter such as a "signal", the claim as a whole would be non-statutory. In the case where the specification defines the computer readable medium or memory as statutory tangible products such as a hard drive, ROM, RAM,

etc, as well as a non-statutory entity such as a "signal", "carrier wave", or "transmission medium", the examiner suggests amending the claim to *include* the disclosed tangible computer readable media, while at the same time *excluding* the intangible media such as signals, carrier waves, etc.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 5, 7-8, 11-13, 15-16, and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshima et al (US Patent 6,925,250), hereinafter referred to as Oshima, in view of De Bonet et al (US Patent 6,510,177), hereinafter referred to as De Bonet.

Regarding **claim 1**, Oshima discloses an optical disc for recording high resolution and normal image, optical disc player, optical disc recorder, and playback control information generator. Further, Oshima discloses a specific hierarchical recording apparatus, which reads on the claimed, "a system (10) for providing high definition (HD) video images in a standard definition (SD) compatible format," as disclosed at column 9, lines 66-67 and exhibited in figure 1; the apparatus comprising:

a 720p/480p downconverter (704) that converts a 720p video signal (703) into a 480p video signal (707), which reads on the claimed, “a system (12) for scaling down the HD video images to an SD video format,” as disclosed at column 10, lines 11-18;

MPEG encoder (708) that compresses the 480p signal, which reads on the claimed, “a system (18) for encoding the SD video,” as disclosed at column 10, lines 18-20; and

recording means (723) that records the differential signal and the 480p signal onto a disk (724) such as a DVD, which reads on the claimed, "a system (24) for storing the SD video and each fine detail map in the SD compatible format," as disclosed at column 10, lines 43-45. However, Oshima fails to disclose a system (22) for generating a fine detail map for each HD video image. The examiner maintains that it was well known in the art to include a system (22) for generating a fine detail map for each HD video image, as taught by De Bonet.

In a similar field of endeavor, De Bonet discloses a system and method for layered video coding enhancement. Further, De Bonet discloses layered video encoder (220) that divides and encodes the high-resolution video sequence into a base layer and an enhancement layer, the base layer including a low-resolution video stream that uses a conventional compression format (such as MPEG-2) and may be decoded independent of the enhancement layer using a conventional video decoder, the enhancement layer including a high-resolution video stream that provides variable enhancement of the base layer, encoded within the base layer data are motion vectors that are used in the decoding of both the base and enhancement layers, the motion

vectors being computed from the high-resolution video sequence, adjusted for use with a block size and vector accuracy appropriate for the base layer, and transmitted within the base layer and upsampled during decoding, which reads on the claimed, "a system (22) for generating a fine detail map for each HD video image," as disclosed at column 7, lines 26-43.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical disc for recording high resolution and normal image, optical disc player, optical disc recorder, and playback control information generator of Oshima to include layered video encoder (220) that divides and encodes the high-resolution video sequence into a base layer and an enhancement layer, the base layer including a low-resolution video stream that uses a conventional compression format (such as MPEG-2) and may be decoded independent of the enhancement layer using a conventional video decoder, the enhancement layer including a high-resolution video stream that provides variable enhancement of the base layer, encoded within the base layer data are motion vectors that are used in the decoding of both the base and enhancement layers, the motion vectors being computed from the high-resolution video sequence, adjusted for use with a block size and vector accuracy appropriate for the base layer, and transmitted within the base layer and upsampled during decoding, as taught by De Bonet, for the purpose of providing high-resolution video while retaining backward compatibility with conventional video-compression technology.

Regarding **claim 5**, the combination of Oshima and De Bonet discloses everything claimed as applied above (see claim 1). Further, Oshima discloses a second MPEG encoder (717) that encodes the differential information (717) into a GOP-based video signal, which reads on the claimed, "wherein the system (22) for generating the fine detail map comprises a compression system for compressing the fine detail map," as disclosed at column 10, lines 30-31.

Regarding **claim 7**, the combination of Oshima and De Bonet discloses everything claimed as applied above (see claim 1). Further, Oshima discloses MPEG encoder (708), and disk (724) such as a DVD, which reads on the claimed, "wherein the system for encoding (18) comprises an MPEG-2 encoder, and the SD compatible medium comprises a DVD," as disclosed at column 10, lines 19 and 44.

Regarding **claim 8,** the combination of Oshima and De Bonet discloses everything claimed as applied above (see claim 1). Further, Oshima discloses a movie being recorded by the system at a transfer rate of 8Mbps, which reads on the claimed, "wherein the SD video and the fine detail map are stored at a combined rate of approximately 5 megabits/second," as disclosed at column 19, lines 24-28.

Regarding **claim 11**, the combination of Oshima and De Bonet discloses everything claimed as applied above (see claim 1). Further, Oshima discloses recording a signal into three layers 480i, 480p, and 720p on a DVD, which reads on the claimed, "wherein the SD video can be stored in a format selected from the group consisting of: progressive and interlaced," as disclosed at column 15, line 45 through column 16, line 18, and exhibited in figure 5.

Regarding **claim 12**, the combination of Oshima and De Bonet discloses everything claimed as applied above (see claim 1). Further, Oshima discloses hierarchical recording identifier (725) and interleave block reproduction prohibition information (726) recorded in overall management information (224), which reads on the claimed, "wherein the fine detail map is stored in an MPEG userdata field," as disclosed at column 10, lines 51-53 and exhibited in figure 23.

Regarding **claim 13,** Oshima discloses an optical disc for recording high resolution and normal image, optical disc player, optical disc recorder, and playback control information generator. Further, Oshima discloses a three hierarchical layer recording apparatus, which reads on the claimed, "a playback system (30) for reconstructing a high definition (HD) video image from a standard definition (SD) format bitstream (24)," as disclosed at column 15, lines 47-48 and exhibited in figure 5; the apparatus comprising:

three MPEG decoders that decode a signal reproduced from the disk (724a), the signals comprising one of 480i/480p/720p, which reads on the claimed, "a system (32) for extracting and decoding SD data from the bitstream," as disclosed at column 16, lines 17-28;

synthesis section (732) that obtains a 480p video signal (729) from a 480i basic signal (749a), and then synthesizing a 720p differential signal (731) along with the480p video signal (729) into synthesized 720p output (733a), which reads on the claimed, "a system (34) for de-interlacing the decoded SD data; and a system (36) for up-scaling

and post-processing the decoded SD data with the fine detail map to generate the HD video image," as disclosed at column 16, lines 28-37.

However, Oshima fails to disclose a system for extracting a fine detail map associated with each image from the bitstream. The examiner maintains that it was well known in the art to include a system for extracting a fine detail map associated with each image from the bitstream, as taught by De Bonet.

In a similar field of endeavor, De Bonet discloses a system and method for layered video coding enhancement. Further, De Bonet discloses layered video encoder (220) that divides and encodes the high-resolution video sequence into a base layer and an enhancement layer, the base layer including a low-resolution video stream that uses a conventional compression format (such as MPEG-2) and may be decoded independent of the enhancement layer using a conventional video decoder, the enhancement layer including a high-resolution video stream that provides variable enhancement of the base layer, encoded within the base layer data are motion vectors that are used in the decoding of both the base and enhancement layers, the motion vectors being computed from the high-resolution video sequence, adjusted for use with a block size and vector accuracy appropriate for the base layer, and transmitted within the base layer and upsampled during decoding, which reads on the claimed, "a system for extracting a fine detail map associated with each image from the bitstream," as disclosed at column 7, lines 26-43.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical disc for recording high resolution and

normal image, optical disc player, optical disc recorder, and playback control information generator of Oshima to include layered video encoder (220) that divides and encodes the high-resolution video sequence into a base layer and an enhancement layer, the base layer including a low-resolution video stream that uses a conventional compression format (such as MPEG-2) and may be decoded independent of the enhancement layer using a conventional video decoder, the enhancement layer including a high-resolution video stream that provides variable enhancement of the base layer, encoded within the base layer data are motion vectors that are used in the decoding of both the base and enhancement layers, the motion vectors being computed from the high-resolution video sequence, adjusted for use with a block size and vector accuracy appropriate for the base layer, and transmitted within the base layer and upsampled during decoding, as taught by De Bonet, for the purpose of providing high-resolution video while retaining backward compatibility with conventional video-compression technology.

Regarding **claim 15**, the combination of Oshima and De Bonet discloses everything claimed as applied above (see claim 13). Further, De Bonet discloses the degree of enhancement provided by the enhancement layer can be continuously varied to meet specific performance criteria, which reads on the claimed, “wherein the post-processing system (36) applies adaptive peaking after fine details have been added back to the video image using the fine detail map,” as disclosed at column 13, lines 15-17.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Oshima and De Bonet to include discloses the degree of enhancement provided by the enhancement layer can be continuously varied to meet specific performance criteria, as taught by De Bonet, for the purpose of fulfilling some fidelity criterion while allowing the bit rate to vary as necessary.

Regarding **claim 16**, the combination of Oshima and De Bonet discloses everything claimed as applied above (see claim 13). Further, De Bonet discloses using overlapping motion block prediction in order to smooth the edges of adjacent macroblocks as they are reassembled during decoding, which reads on the claimed, "wherein the post-processing system (36) applies luminance transient improvement after fine details have been added back to the video image using the fine detail map," as disclosed at column 13, lines 59-63.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Oshima, and Debonet to include using overlapping motion block prediction in order to smooth the edges of adjacent macroblocks as they are reassembled during decoding, as taught by De Bonet, for the purpose of reducing the amount of prediction error near the edges of blocks.

Regarding **claim 23**, the limitations of the claim are rejected in view of the explanation set forth in claim 13 above.

Regarding **claim 24**, the combination of Oshima and De Bonet disclose everything claimed as applied above (see claim 23). Further, the limitations of the claim are rejected in view of the explanation set forth in claim 12 above.

Regarding **claim 25**, the combination of Oshima and De Bonet disclose everything claimed as applied above (see claim 23). Further, the limitations of the claim are rejected in view of the explanation set forth in claim 15 above.

Regarding **claim 26**, the combination of Oshima and De Bonet disclose everything claimed as applied above (see claim 23). Further, the limitations of the claim are rejected in view of the explanation set forth in claim 16 above.

Claims 2-4, 14, 17-18, 21-22, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshima et al (US Patent 6,925,250), hereinafter referred to as Oshima, in view of De Bonet et al (US Patent 6,510,177), hereinafter referred to as De Bonet, in view of Garrido et al (US PgPub 2007/0230914), hereinafter referred to as Garrido.

Regarding **claim 2,** the combination of Oshima and De Bonet discloses everything claimed as applied above (see claim 1). However, the combination fails to disclose wherein each fine detail map describes edge details in the HD video image. However, the examiner maintains that it was well known in the art to include wherein each fine detail map describes edge details in the HD video image, as taught by Garrido.

In a similar field of endeavor, Garrido discloses classifying images of a video signal. Garrido further discloses difference image (D) which contains the high

frequency components that distinguish the HD image from the SD image, the difference image (D) being subjected to a 4X4 DCT in order to produce coefficients, the DCT coefficients representing identifying characteristics of a geometric shape such as an edge, which reads on the claimed, “wherein each fine detail map describes edge details in the HD video image,” as disclosed at paragraphs [0159], [0173], [0176], and [0181].

Therefore, it would have been obvious to one or ordinary skill in the art at the time the invention was made to modify the combination of Oshima and De Bonet to include difference image (D) which contains the high frequency components that distinguish the HD image from the SD image, the difference image (D) being subjected to a 4X4 DCT in order to produce coefficients, the DCT coefficients representing identifying characteristics of a geometric shape such as an edge, as taught by Garrido, for the purpose of producing high-frequency information needed to establish the "look and feel" of an HD image.

Regarding **claim 3,** the combination of Oshima, De Bonet, and Garrido discloses everything claimed as applied above (see claim 2). Further, Garrido discloses producing thresholds (5317) and energy ranges (5327) by measuring statistics of classification components, the components P1…P7 representing geometry features such as edges and energy/variance of each block, which reads on the claimed, "a system for generating a threshold map having threshold values derived from a brightness level and an activity level of each region in the HD video image," as disclosed at paragraphs [0181]-[0182], [0200]; and also comparing the ratios to pre-determined thresholds to establish energy ranges (5327), which reads on the claimed,

"a system for comparing the threshold values to corresponding values in a high frequency image generated from the HD video image," as disclosed at paragraph [0201].

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Oshima, De Bonet, and Garrido to include producing thresholds (5317) and energy ranges (5327) by measuring statistics of classification components, the components P1…P7 representing geometry features such as edges and energy/variance of each block and also comparing the ratios to pre-determined thresholds to establish energy ranges (5327), as taught by Garrido, for the purpose of producing high-frequency information needed to establish the "look and feel" of an HD image.

Regarding **claim 4,** the combination of Oshima, De Bonet, and Garrido discloses everything claimed as applied above (see claim 3). Further, De Bonet discloses using overlapping motion block prediction in order to smooth the edges of adjacent macroblocks as they are reassembled during decoding, which reads on the claimed, "wherein the system (22) for generating the fine detail map further includes a line reduction system that eliminates edge details that are greater than a predetermined distance away from other edge details," as disclosed at column 13, lines 59-63.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Oshima, De Bonet, and Garrido to include using overlapping motion block prediction in order to smooth the edges of adjacent macroblocks as they are reassembled during decoding, as taught by

De Bonet, for the purpose of reducing the amount of prediction error near the edges of blocks.

Regarding **claim 14**, the combination of Oshima and De Bonet discloses everything claimed as applied above (see claim 13). Further, the limitations of the claim are rejected in view of the limitations set forth in claim 2 above.

Regarding **claim 17**, Oshima discloses an optical disc for recording high resolution and normal image, optical disc player, optical disc recorder, and playback control information generator. Further, Oshima discloses a method for recording a HDTV signal in a hierarchical manner, which reads on the claimed, “a method for recording high definition (HD) video images onto a standard definition - (SD) compatible medium,” as disclosed at column 10, lines 1-2 and exhibited in figure 20; the method comprising:

a 720p/480p downconverter (704) that converts a 720p video signal (703) into a 480p video signal (707), which reads on the claimed, “scaling down the HD video images to an SD video format,” as disclosed at column 10, lines 11-18;

MPEG encoder (708) that compresses the 480p signal, which reads on the claimed, “encoding the SD video,” as disclosed at column 10, lines 18-20; and

recording means (723) that records the differential signal and the 480p signal onto a disk (724) such as a DVD, which reads on the claimed, "storing the SD video and the fine detail map onto the SD compatible format," as disclosed at column 10, lines 43-45. However, Oshima fails to disclose generating a fine detail map for each HD video

image. The examiner maintains that it was well known in the art to include generating a fine detail map for each HD video image, as taught by De Bonet.

In a similar field of endeavor, De Bonet discloses a system and method for layered video coding enhancement. Further, De Bonet discloses layered video encoder (220) that divides and encodes the high-resolution video sequence into a base layer and an enhancement layer, the base layer including a low-resolution video stream that uses a conventional compression format (such as MPEG-2) and may be decoded independent of the enhancement layer using a conventional video decoder, the enhancement layer including a high-resolution video stream that provides variable enhancement of the base layer, encoded within the base layer data are motion vectors that are used in the decoding of both the base and enhancement layers, the motion vectors being computed from the high-resolution video sequence, adjusted for use with a block size and vector accuracy appropriate for the base layer, and transmitted within the base layer and upsampled during decoding, which reads on the claimed, "generating a fine detail map for each HD video image," as disclosed at column 7, lines 26-43.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical disc for recording high resolution and normal image, optical disc player, optical disc recorder, and playback control information generator of Oshima to include layered video encoder (220) that divides and encodes the high-resolution video sequence into a base layer and an enhancement layer, the base layer including a low-resolution video stream that uses a conventional

compression format (such as MPEG-2) and may be decoded independent of the enhancement layer using a conventional video decoder, the enhancement layer including a high-resolution video stream that provides variable enhancement of the base layer, encoded within the base layer data are motion vectors that are used in the decoding of both the base and enhancement layers, the motion vectors being computed from the high-resolution video sequence, adjusted for use with a block size and vector accuracy appropriate for the base layer, and transmitted within the base layer and upsampled during decoding, as taught by De Bonet, for the purpose of providing high-resolution video while retaining backward compatibility with conventional video-compression technology.

The combination of Oshima and De Bonet fails to disclose, however, wherein the fine detail map describes edge details in each HD video image. The examiner maintains that it was well known in the art to include wherein the fine detail map describes edge details in each HD video image, as taught by Garrido.

In a similar field of endeavor, Garrido discloses classifying images of a video signal. Garrido further discloses difference image (D) which contains the high frequency components that distinguish the HD image from the SD image, the difference image (D) being subjected to a 4X4 DCT in order to produce coefficients, the DCT coefficients representing identifying characteristics of a geometric shape such as an edge, which reads on the claimed, “wherein the fine detail map describes edge details in each HD video image,” as disclosed at paragraphs [0159], [0173], [0176], and [0181].

Therefore, it would have been obvious to one or ordinary skill in the art at the time the invention was made to modify the combination of Oshima and De Bonet to include difference image (D) which contains the high frequency components that distinguish the HD image from the SD image, the difference image (D) being subjected to a 4X4 DCT in order to produce coefficients, the DCT coefficients representing identifying characteristics of a geometric shape such as an edge, as taught by Garrido, for the purpose of producing high-frequency information needed to establish the "look and feel" of an HD image.

Regarding **claim 18**, the combination of Oshima, De Bonet, and Garrido discloses everything claimed as applied above (see claim 17). Further, De Bonet discloses layered video encoder (220) that divides and encodes the high-resolution video sequence into a base layer and an enhancement layer, the base layer including a low-resolution video stream that uses a conventional compression format (such as MPEG-2) and may be decoded independent of the enhancement layer using a conventional video decoder, the enhancement layer including a high-resolution video stream that provides variable enhancement of the base layer, encoded within the base layer data are motion vectors that are used in the decoding of both the base and enhancement layers, the motion vectors being computed from the high-resolution video sequence, adjusted for use with a block size and vector accuracy appropriate for the base layer, and transmitted within the base layer and upsampled during decoding, which reads on the claimed, “extracting high frequency image data (42) from a HD video image,” as disclosed at column 7, lines 26-43.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Oshida, De Bonet, and Garrido to include layered video encoder (220) that divides and encodes the high-resolution video sequence into a base layer and an enhancement layer, the base layer including a low-resolution video stream that uses a conventional compression format (such as MPEG-2) and may be decoded independent of the enhancement layer using a conventional video decoder, the enhancement layer including a high-resolution video stream that provides variable enhancement of the base layer, encoded within the base layer data are motion vectors that are used in the decoding of both the base and enhancement layers, the motion vectors being computed from the high-resolution video sequence, adjusted for use with a block size and vector accuracy appropriate for the base layer, and transmitted within the base layer and upsampled during decoding, as taught by De Bonet, for the purpose of providing high-resolution video while retaining backward compatibility with conventional video-compression technology.

Further, Garrido discloses producing thresholds (5317) and energy ranges (5327) by measuring statistics of classification components, the components P1…P7 representing geometry features such as edges and energy/variance of each block, which reads on the claimed, "creating a threshold map (44) having threshold values derived from a brightness level and an activity level of each region in the HD video image," as disclosed at paragraphs [0181]-[0182], [0200]; and also comparing the ratios to pre-determined thresholds to establish energy ranges (5327), which reads on the

claimed, “comparing (46) the threshold values to corresponding high frequency image data,” as disclosed at paragraph [0201].

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Oshima, De Bonet, and Garrido to include producing thresholds (5317) and energy ranges (5327) by measuring statistics of classification components, the components P1…P7 representing geometry features such as edges and energy/variance of each block and also comparing the ratios to pre-determined thresholds to establish energy ranges (5327), as taught by Garrido, for the purpose of producing high-frequency information needed to establish the "look and feel" of an HD image.

Regarding **claim 21,** the combination of Oshima, De Bonet, and Garrido discloses everything claimed as applied above (see claim 18). Further, De Bonet discloses using overlapping motion block prediction in order to smooth the edges of adjacent macroblocks as they are reassembled during decoding, which reads on the claimed, “wherein the step of generating the fine detail map includes the further step of eliminating edge details that are greater than a predetermined distance away from other edge details,” as disclosed at column 13, lines 59-63.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Oshima, De Bonet, and Garrido to include using overlapping motion block prediction in order to smooth the edges of adjacent macroblocks as they are reassembled during decoding, as taught by

De Bonet, for the purpose of reducing the amount of prediction error near the edges of blocks.

Regarding **claim 22**, the combination of Oshima, De Bonet, and Garrido discloses everything claimed as applied above (see claim 18). Further, De Bonet discloses using overlapping motion block prediction in the calculation of P-frame and B-frame predictions in order to smooth the edges of adjacent macroblocks as they are reassembled during decoding, and I-frame decoder module (1010) decompresses the residual I-frame data within the enhancement layer, adds this decoded residual information to I-frame predictions, and creates high-resolution decoded I-frames, which reads on the claimed, "wherein the HD video image (40) comprises an I frame, and the step of generating the fine detail map includes performing motion compensation for P and B frames," as disclosed at column 13, lines 59-63.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Oshima, De Bonet, and Garrido to include using overlapping motion block prediction in order to smooth the edges of adjacent macroblocks as they are reassembled during decoding, as taught by De Bonet, for the purpose of reducing the amount of prediction error near the edges of blocks.

Regarding **claim 27**, the limitations of the claim are rejected in view of the explanation set forth in claim 18 above.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oshima et al (US Patent 6,925,250), hereinafter referred to as Oshima, in view of De Bonet et al

(US Patent 6,510,177), hereinafter referred to as De Bonet, in view of Wu et al (US Patent 6,907,070), hereinafter referred to as Wu.

Regarding **claim 9**, the combination of Oshima and De Bonet discloses everything claimed as applied above (see claim 1). The combination, however, fails to disclose wherein the fine detail map is stored at a rate of less than 1 megabit/second. The examiner maintains that it was well known in the art to include wherein the fine detail map is stored at a rate of less than 1 megabit/second, as taught by Wu.

In a similar field of endeavor, Wu discloses drifting reduction and macroblock-based control in progressive fine granularity scalable video coding. Further, Wu discloses the total bit rate for the enhancement layer bit stream is more than 384kbits/s, which reads on the claimed, "wherein the fine detail map is stored at a rate of less than 1 megabit/second," as disclosed at column 5, lines 9-10.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Oshima and De Bonet to include the total bit rate for the enhancement layer bit stream is more than 384kbits/s, as taught by Wu, for the purpose of preserving as much space as possible for the base layer data on the recording medium.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oshima et al (US Patent 6,925,250), hereinafter referred to as Oshima, in view of De Bonet et al (US Patent 6,510,177), hereinafter referred to as De Bonet, in view of Godwin et al (US Patent 6,310,655), hereinafter referred to as Godwin.

Regarding **claim 10**, the combination of Oshima and De Bonet discloses everything claimed as applied above (see claim 1). The combination, however, fails to disclose further comprising an aspect ratio format system for formatting the SD video for widescreen, letterboxing, and scan and pan formats. The examiner maintains that it was well known in the art to include further comprising an aspect ratio format system for formatting the SD video for widescreen, letterboxing, and scan and pan formats, as taught by Godwin.

In a similar field of endeavor, Godwin discloses a method and device for displaying widescreen images on conventional aspect ratio display monitors. Further, Godwin discloses displaying images in several different configurations, including 4:3, a 16:9 composite image compressed into the 4:3 display, or an 8:9 window that may be a pan and scan portion of the primary 4:3 image, which reads on the claimed, "further comprising an aspect ratio format system for formatting the SD video for widescreen, letterboxing, and scan and pan formats," as disclosed at column 2, lines 29-44.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Oshima and De Bonet to include displaying images in several different configurations, including 4:3, a 16:9 composite image compressed into the 4:3 display, or an 8:9 window that may be a pan and scan portion of the primary 4:3 image, as taught by Godwin, for the purpose of achieving compatibility of widescreen images with standard 4:3 aspect ratio televisions currently in use.

Allowable Subject Matter

Claims 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 19-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARC DAZENSKI whose telephone number is (571)270-5577. The examiner can normally be reached on M-F, 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thai Tran can be reached on (571)272-7382. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MARC DAZENSKI/
Examiner, Art Unit 2621

/Thai Tran/
Supervisory Patent Examiner, Art Unit 2621